# Engineering Interpretations

## **Chemical Properties**

This table shows estimates of some characteristics and features that affect soil behavior. These estimates are given for the major layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

**Properties** 

**DEPTH** to the upper and lower boundaries of each layer is indicated.

**SOIL REACTION** is a measure of acidity or alkalinity and is expressed as a range in pH values. The range in pH of each major horizon is based on many field tests. For many soils, values have been verified by laboratory.

**SALINITY** is a measure of soluble salts in the soil at saturation. It is expressed as the electrical conductivity of the saturation extract, in millimhos per centimeter at 25 degrees C. Estimates are based on field and laboratory measurements at typical sites of nonirrigated soils.

This subsection includes:

• (a) Chemical Properties

Map symbol and soil name	Depth	Cation  exchange  capacity 	Effective   cation  exchange  capacity	Soil reaction	Calcium  carbon-   ate	Gypsum	Salinity	Sodium   adsorp-   tion   ratio
	In	meq/100 g	meq/100 g	рН	Pct	Pct	mmhos/cm	_
AmC2:								
Armster	0-6	8.0-15	i	5.6-6.0	j o j	0	0	j o
	6-52		18-25	4.5-5.6	j o j	0	0	0
	52-60	10-20		6.1-7.3	0	0	0	0
Arc3:								
Armster	0-6	15-22	i	5.6-6.0	j 0 j	0	0	0
	6-52		18-25	4.5-5.6	0	0	0	0
	52-60	10-20		6.1-7.3	0	0	0	0
au:								
Auxvasse	0-15	5.0-8.0		5.1-6.0	j o j	0	0	j o
	15-40		24-32	4.5-5.5	j 0 j	0	0	0
	40-60		12-20	4.5-5.0	0	0	0	0
ßk:								
Blake	0-17	25-35	i	7.4-8.4	5-30	0	0	0
	17-35	20-30	i	7.4-7.8	5-30	0	0	0
	35-60	10-20		7.9-8.4	5-30	0	0	0
3m :								
Blake	0-7	25-35		7.4-8.4	5-30	0	0	0
	7-24	20-30		7.4-7.8	5-30	0	0	j o
	24-60	10-20		7.9-8.4	5-30	0	0	0
Haynie	   0-7	15-20		   7.4-7.8	0-25	0	0	0
-	7-60	15-20		7.4-7.8	5-30	0	0	0
Waldron	   0-7	30-40		   7.4-7.8		0	0	0
	7-60	25-37		7.4-7.8		0	0	0

Map symbol and soil name	Depth     	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Calcium  carbon-   ate	Gypsum     	Salinity	Sodium   adsorp-   tion   ratio
	In	meq/100 g	meq/100 g	рН	Pct	Pct	mmhos/cm	_
Bo:						_	_	
Booker	0-19	30-45		6.1-7.3	0	0	0	0
	19-36	40-60		6.1-7.3	0	0	0	0
	36-60	35-50		6.1-7.3	0	0	0	0
CaB:	 							
Calwoods	0-8		8.0-16	4.5-6.0	0	0	0	0
	8-12		14-20	4.5-5.0	0	0	0	0
	12-33		22-30	4.5-5.0	0	0	0	0
	33-40		14-20	5.1-5.5	0	0	0	0
	40-60	14-18		5.6-6.0	0	0	0	0
CbB2:	 							
Calwoods	0-8		14-18	4.5-6.0	i o i	o i	0	0
	8-12		14-20	4.5-5.0		0	0	0
	12-33	i	22-30	4.5-5.0	i o i	0	0	0
	33-40		14-20	5.1-5.5		0	0	0
	40-60	14-18		5.6-6.0	0	0	0	0
Cd:			 					
Cedargap	0-23	6.0-16		6.6-7.3	0	0	0	0
3.1	23-35	6.0-18		6.6-7.3	0 1	0	0	0
	35-46	9.0-18		6.6-7.3		0	0	0
	46-60	12-18		6.6-7.3		0	0	0
							· ·	
Ce:	 							
Cedargap	0-12	7.0-17		6.6-7.3	0	0	0	0
J <u>-</u> -	12-25	6.0-16		6.6-7.3		0	0	0
	25-35	6.0-18		6.6-7.3		0	0	0
	35-46	9.0-18		6.6-7.3		0	0	
	46-60	12-18	 	6.6-7.3	0 1	0 1	0	0

Map symbol and soil name	Depth     	Cation  exchange  capacity 	Effective   cation  exchange  capacity	Soil  reaction 	Calcium   carbon-    ate	Gypsum       	Salinity	Sodium   adsorp-   tion   ratio
	   In	meq/100 g	  meq/100 g	   pH	Pct	Pct	mmhos/cm	_
£f∶			 					
Cedargap variant	0-6 6-60	18-24 12-20	 	6.1-6.5	0	0	0 0	0 0
ːh:	 		 	 				
Chariton	0-8	10-18		6.1-7.3				
	8-12	8.0-14		5.1-6.5				
	12-18	14-17		5.6-6.0				
	18-37	24-30		5.6-6.5				
	37-46	16-20	ļ	6.6-7.3				
	46-60	8.0-19		6.6-7.3				
CnF:	 		 	 				
Chilhowie	0-3		i	6.6-7.8	i i		0	i
	3-28		i	6.6-7.8	i i	i	0	j
	28-32					[		ļ
Gasconade	   0-6	22-29	 	   6.6-7.3	0-2	0	0	0
dabeonade	6-13	18-32		6.6-7.3	0-2	0	0	
	13-23							
Crider	   0-9		 	   6.1-6.5			0	
CIIdei	9-41		 	5.1-6.0			0	
	41-60			5.6-6.0			0	
!o:	<u> </u>		 	 				
Coland	l   0-27	30-36	 	   6.1-7.3		0	0	0
	27-60	30-36	 	6.1-7.3		0	0	0

Map symbol and soil name	Depth	Cation  exchange  capacity 	Effective   cation  exchange  capacity	Soil  reaction   	Calcium   carbon-    ate	Gypsum       	Salinity	Sodium adsorp- tion ratio
	In	meq/100 g	  meq/100 g	   рН	Pct	Pct	mmhos/cm	
CrC: Crider							0	
Crider	0-9		 	6.1-6.5			0	
	9-41 41-60		 	5.1-6.0   5.6-6.0			0 0	
CrD2:			 					
Crider	0-9			   6.1-6.5			0	
	9-41			5.1-6.0	i i		0	
	41-60			5.6-6.0	ļ į		0	j
Do:			 					
Dockery	0-6	12-16		6.6-7.3				
	6-14	8.0-14		6.6-7.3				
	14-60	6.0-12		6.6-7.3				
Fc:								
Mine and stockpiles								
GaC:			 					
Gasconade	0-6	20-25		6.6-7.3	0	0	0	0
	6-13	15-30		6.6-7.3	0	0	0	0
	13-17 		 	 				
rae.								
GdF: Gasconade	l l 0-6	22-29	 	   6.6-7.3	0-2	0	0	0
Gasconaue	0-6   6-13	18-32	 	6.6-7.3	0-2	0	0	0
	13-23		 	0.0 7.3				
Rock outcrop								

Map symbol and soil name	Depth     	Cation  exchange  capacity 	Effective   cation  exchange  capacity	Soil reaction	Calcium  carbon-    ate   	Gypsum     	Salinity	Sodium   adsorp-   tion   ratio
	   In	meq/100 g	  meq/100 g	Н	Pct	Pct	mmhos/cm	_
GoD:						_	_	
Goss	0-6	10-14		5.1-6.0	0	0	0	0
	6-19	10-16		5.1-6.0	0	0	0	0
	19-63	20-40		5.0-6.0	0	0	0	0
	63-69	25-45		5.0-6.0	0	0	0	0
GoF:			 		 			
Goss	0-2	10-14		5.1-6.0	i o i	0	0	0
	2-23	10-16	i	5.1-6.0	i o i	o i	0	i o
	23-61	20-40	i	5.0-6.0	i o i	o i	0	i o
	61-65	25-45		5.0-6.0	0	0	0	0
Goss	   0-6	9.0-15	 	   5.1-6.0	   0	0	0	0
GODD	6-19	10-16	 	5.1-6.0		0 1	0	
	19-63	20-40		5.0-6.0		0 1	0	0
	63-69	25-45		5.0-6.0		0	0	
нсв:	 		 					
Hatton	l   0-8		   6.0-12	4.5-5.5				
пассоп	0-8   8-32		12-25	4.5-5.5	 			
	8-32   32-45		12-25	4.5-5.0				
		1	!		!!!	!		
	45-60 	10-20	 	5.6-6.0 	 			
He:			İ		i i	İ		
Haynie	0-7	15-20		7.4-7.8	0-25	0	0	0
	7-60	15-20		7.4-7.8	5-30	0	0	0
Hg:	 		 					
Hodge	0-10	3.0-10	i	7.4-7.8	5-10	0	0	j o
_	10-60	3.0-9.0		7.4-7.8	5-10	0	0	0

Map symbol and soil name	Depth	Cation  exchange  capacity 	Effective cation exchange capacity	Soil reaction	Calcium  carbon-   ate	Gypsum       	Salinity	Sodium   adsorp-   tion   ratio
OC2:	In	meq/100 g	meq/100 g	   pH	Pct	Pct	mmhos/cm	-
Holstein	l l 0-5	 	 	   5.6-6.5		0	0	0
HOISCEIN	0-3   5-13		 	5.1-6.0		0	0	1 0
	13-46		 	4.5-6.0		0 1	0	
	46-65			4.5-6.0	0	0	0	
oD2:		 						
Holstein	0-5			5.6-6.5	0	o İ	0	0
	5-13			5.1-6.0	i o i	0	0	0
	13-46			4.5-6.0	i o i	o i	0	j o
	46-65	ļ		4.5-6.0	0	0	0	0
rE:		 						
Holstein	0-5			5.6-6.5	i o i	o i	0	0
	5-13	j		5.1-6.0	j o j	o j	0	0
	13-46	j		4.5-6.0	j 0 j	0	0	0
	46-65	ļ		4.5-6.0	0	0	0	0
Rock outcrop								
eC2:		 						
Keswick	0-7		20-25	4.5-6.0				
	7-32		30-50	4.5-5.5		i		
	32-60	30-36		5.6-6.0	0-15			
eD:								
Keswick	0-11	j	20-25	4.5-6.0	i i	j		j
	11-32	j	30-50	4.5-5.5	j j	j		
	32-60	30-36		5.6-6.0	i 0-15 i	i		i

Map symbol and soil name	Depth	Cation  exchange  capacity 	Effective   cation  exchange  capacity	Soil  reaction 	Calcium  carbon-   ate	Gypsum     	Salinity	Sodium   adsorp-   tion   ratio
	   In	meq/100 g	meq/100 g	   pH	Pct	Pct	mmhos/cm	_
KsC3: Keswick	0.16		25 20					
Keswick	0-16   16-52		25-30 30-50	4.5-6.0   4.5-5.5				
	16-52	30-36	30-50	5.6-6.0	0-15			
ue:	ļ				į	į		į
Orthents	   			 				
nE:	 							
Lindley	0-4	10-16		5.1-6.0	0	0	0	0
	4-45	15-20		4.5-6.5	0	0	0	0
	45-60	10-16		7.4-7.8	0	0	0	0
ſa:	 							
Marion	0-13		7.0-16	4.5-6.0	0	0	0	0
	13-36		24-31	4.5-5.0	0	0	0	0
	36-45		15-20	4.5-5.0	0	0	0	0
	45-60		12-18	4.5-5.0	0	0	0	0
MeC2:	 			 				
Menfro	0-7	10-16	j	5.6-6.5	j j			j
	7-11	15-20	i	5.1-6.5	j j	j		
	11-57	15-20	j	5.1-6.5	j j	j		i
	57-72	5.0-10	j	6.1-6.5	ļ ļ	j		
MeD2:	 			 				
Menfro	0-7	10-16	j	5.6-6.5	j j	j		i
	7-43	15-20	j	5.1-6.5		j		
	43-72	5.0-10	j	6.1-6.5	j j	j		i

Map symbol and soil name	Depth	Cation  exchange	Effective cation	Soil  reaction	Calcium	Gypsum	Salinity	Sodium adsorp-
and soli name		capacity	exchange	reaction	ate			ausorp-
		capacity	capacity					ratio
								_
leE:	In	meq/100 g	meq/100 g	Hq I	Pct	Pct	mmhos/cm	
Menfro	0-7	10-16	 	   5.6-6.5				
Mellil O	7-43	15-20	 	5.1-6.5				
	43-72	5.0-10	 	6.1-6.5				
	43-72	5.0-10		0.1-0.5				
eF:				 				
Menfro	0-7	10-16	j	5.6-6.5	j j	j		j
	7-43	15-20	j	5.1-6.5	j j	j		j
	43-72	5.0-10		6.1-6.5				ļ
loB:		 	 	 				
Mexico	0-9	10-18	 	5.6-7.5				
	9-14		18-26	5.1-5.5				
	14-25	26-30		5.1-6.0				
	25-43	18-26		6.1-6.5	i i			
	43-80	14-26		6.6-7.3				
[pB2:				 				
Mexico	0-9	14-22		   5.6-7.5				
	9-14		18-26	5.1-5.5	i i			
	14-25	26-30		5.1-6.0	i i			
j	25-43	18-26		6.1-6.5	i i			i
	43-80	14-26		6.6-7.3				
s:				 				
ns:   Modale	0-30	15-20	 	   6.6-7.8	5-30	0	0	0
riodate	30-60	13-20	 	0.0-7.8   7.4-7.8	5-30	0 1	0	0

Map symbol and soil name	Depth     	Cation  exchange  capacity 	Effective   cation  exchange  capacity	Soil  reaction 	Calcium  carbon-   ate	Gypsum       	Salinity	Sodium   adsorp-   tion   ratio
	   In	meq/100 g	  meq/100 g	   pH	Pct	Pct	mmhos/cm	_
iu:		10-16		4 5 7 2		ļ		
Moniteau	0-7			4.5-7.3				
	7-20	9.0-16		4.5-7.3				
	20-55		19-26	4.5-5.5				
	55-65		9.0-18	4.5-5.5				
rd:	 		 	 		ł		
Nodaway	l l 0-6	20-25	 	6.1-7.3		0	0.0-2.0	0
way	6-60	20-25	 	6.6-7.3		0	0.0-2.0	0
	0 00			0.0 /.5			0.0 2.0	
rt:			İ	İ	i i	i		i
Putnam	0-9	7.0-20		5.1-6.5	i i	i		i
	9-15	7.0-18	i	4.5-6.5	i i	i		i
	15-32		24-30	4.5-5.5	i i	j		j
	32-44		18-24	4.5-5.5	j j	j		j
	44-80	14-18	j	5.6-6.0		j		ļ
)u:	 					ļ		
Rock quarry	 							
v:	 		 	 		}		
Riverwash	I   0-6	 	 	 		-	0	
KIVELWASII	l 6-60		 	 			0	
	0-00 		 	 			U	<b>-</b>
aC2:	 		 	 				
Sampsel	l 0-6	15-22		6.1-7.3	0	0	0	0
<u>-</u> <del>-</del> _	6-42	20-30		6.1-7.8		0	0	0
	42-66	20-30		6.1-7.8	0 1	0	0	0

Map symbol and soil name	Depth     	Cation  exchange  capacity 	Effective   cation  exchange  capacity	Soil  reaction   	Calcium   carbon-    ate	Gypsum       	Salinity	Sodium   adsorp-   tion   ratio
71- •	In In	meq/100 g	  meq/100 g	   pH	Pct	Pct	mmhos/cm	_
Sh: Sharon	   0-7		   7.0-20	   4.5-6.0		0	0	0
Silar Oii	7-30		6.0-10	4.5-6.0		0	0	1 0
	30-60		3.0-10	4.5-6.0		0 1	0	0
	30 00		3.0 10	1.3 0.0		Ŭ	Ŭ	
SnD:			İ		i i	i		İ
Snead	0-12	14-22	i	6.1-6.5	j o j	0	0	j o
	12-24	20-30	j	6.6-8.4	5-10	0	0	j o
	24-60							
⁻m:	 	 	 	 				
Twomile	0-9		6.0-12	4.5-6.0				
	9-24		6.0-12	4.5-6.0	i i			i
	24-33	i	6.0-12	4.5-5.0	i i	j		j
	33-62		12-22	4.5-5.0	j j	j		j
	62-72		6.0-22	5.1-5.5				ļ
<b>1</b> :	 	 	 	 				
Water								
Ja:	 	 	 	 				
Waldron	l 0-7	30-40	 	   7.4-7.8	1 0 1	0	0	0
marar on	7-60	25-37		7.4-7.8		0	0	0
			İ		i i	i		
ieB:	j	İ	İ	İ	į į	į		İ
Weller	0-12	15-20	j	5.6-6.0	0	0	0	0
	12-43		30-35	4.5-5.5	0	0	0	0
	43-74		25-30	5.1-5.5	0	0	0	0

Map symbol and soil name	   Depth     	Cation exchange capacity	  Effective   cation  exchange  capacity	   Soil  reaction   	  Calcium   carbon-   ate 	Gypsum	   Salinity   	   Sodium   adsorp-   tion   ratio
	In	meq/100 g	meq/100 g	рН	Pct	Pct	mmhos/cm	
WeC2: Weller	   0-8	15-20		 		0	1 0	1 0
weller	, ,	15-20	30-35	5.6-6.0	0		0	0
	8-50	!	1	4.5-5.5	0	0	0	0
	50-60		25-30	5.1-5.5	0	U	0	0
WnB:	 		 	 				 
Winfield	l l 0-6	10-15	 	   6.1-6.5	 		 	 
WIIIIIeid	6-30	10 15	   12-17	5.1-5.5			 	 
	30-62		13-18	5.1-5.5			 	
	30 02		13 10	3.1 3.3 				] 
WnC2:	İ				i			İ
Winfield	0-6	10-15		6.1-6.5			 	
William	6-30		12-17	5.1-5.5				i
	30-62		13-18	5.1-5.5				i
					i i			İ
WnD2:			İ		i i			İ
Winfield	0-6	10-15	i	6.1-6.5	i i			i
	6-30		12-17	5.1-5.5	j i			i
	30-62		13-18	5.1-5.5	j i			i
	İ	İ	j		j i			j
WnE:	ĺ	İ	j		į i			İ
Winfield	0-6	10-15		6.1-6.5	i i			
	6-30		12-17	5.1-5.5	j j			j
	30-62		13-18	5.1-5.5	j i			j
					[			
WnF:								
Winfield		10-15		6.1-6.5				
	6-30		12-17	5.1-5.5				ļ
	30-62		13-18	5.1-5.5				ļ
			ļ		[			ļ